IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE PCT NATIONAL STAGE APPLICATION OF
COLLINGWOOD, STEPHEN P ET AL.
INTERNATIONAL APPLICATION NO: PCT/EP2004/006795
FILED: JUNE 23, 2004
U.S. APPLICATION NO: 10/561366
35 USC §371 DATE: MAY 15, 2006

ART UNIT: 1625
EXAMINER: CHANG, CELIA C

FOR: PIPERIDINIUM AND PYRROLIDINIUM DERIVATIVES AS LIGANDS FOR THE MUSCARINIC M3 RECEPTOR

MS: Amendment
Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

AMENDMENT & REPLY

Sir:

This Reply is submitted in response to the Office Action mailed August 17, 2010 and the Advisory Action mailed December 10, 2010. Reconsideration and withdrawal of the present rejections are respectfully requested.

OK enter 1/14/11
/CC/

Amendments to the Claims are reflected in the listing of the claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 10 of this paper.

Amendments to the Claims

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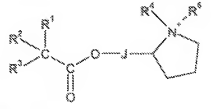
This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1. (Previously Presented) A compound of formula I



I

in salt or zwitterionic form wherein

R^1 and R^3 are each independently a C_3-C_{15}-carbocyclic group or a 5- to 12-membered heterocyclic group having at least one ring heteroatom selected from nitrogen, oxygen and sulphur;

R^2 is hydroxy;

J is C_1-C_2-alkylene;

R^4 is C_1-C_4-alkyl;

R^5 is C_1-alkyl substituted by -CO-R^6, or -CO-NH-R^6,

or R^5 is C_2-C_{10}-alkyl substituted by -O-R^6, -O-CO-R^6, or -R^8,

or R^5 is C_2-C_{10}-alkenyl or C_2-C_{10}-alkynyl optionally substituted by -R^8;

R^6 is a C_3-C_{15}-carbocyclic group,

or R^6 is C_1-C_{10}-alkyl optionally substituted by C_1-C_{10}-alkoxy, -O-R^8 or a C_3-C_{15}-carbocyclic group; and

R^8 is a C_3-C_{15}-carbocyclic group.

Claim 2. (Canceled)

Claim 3. (Previously Presented) A compound according to claim 1, wherein

R^1 and R^3 are each independently a C_3-C_{10}-carbocyclic group, preferably phenyl, or a 5- to 9-membered heterocyclic group having at least one ring heteroatom selected from nitrogen, oxygen and sulphur, preferably thienyl;

R^2 is hydroxy;

J is C_1-C_2-alkylene;

R^4 is C_1-C_4-alkyl;

R^5 is C_1-alkyl substituted by -CO-R^6 or -CO-NH-R^6,

or R^5 is C_2-C_5-alkyl substituted by -O-R^6, -O-CO-R^6 or -R^8,

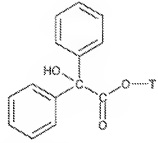
or R^5 is C_2-C_4-alkenyl or C_2-C_8-alkynyl optionally substituted by -R^8,

R^6 is a C_3-C_{10}-carbocyclic group, preferably phenyl,

or R^6 is C_1-C_{15}-alkyl optionally substituted by C_1-C_4-alkoxy, O-R^8 or a C_3-C_{10}-carbocyclic group; and
R^8 is a C_3-C_{10}-carbocyclic group, preferably phenyl.

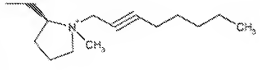
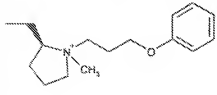
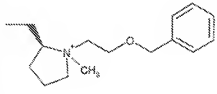
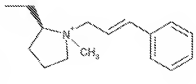
Claims 4-7. (Canceled)

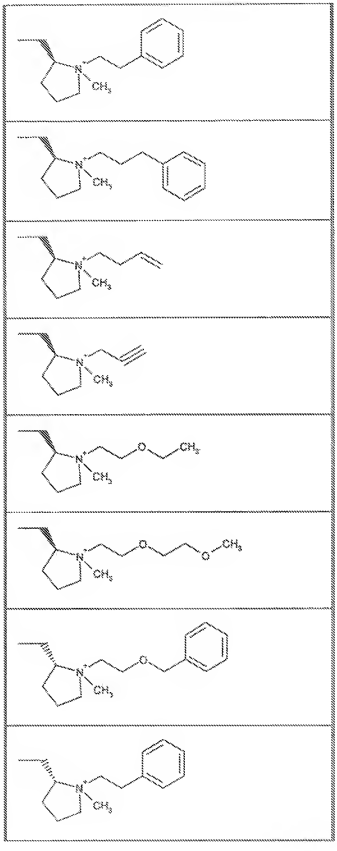
Claim 8. (Previously Presented): A compound according to claim 1, which is also a compound of formula XVI

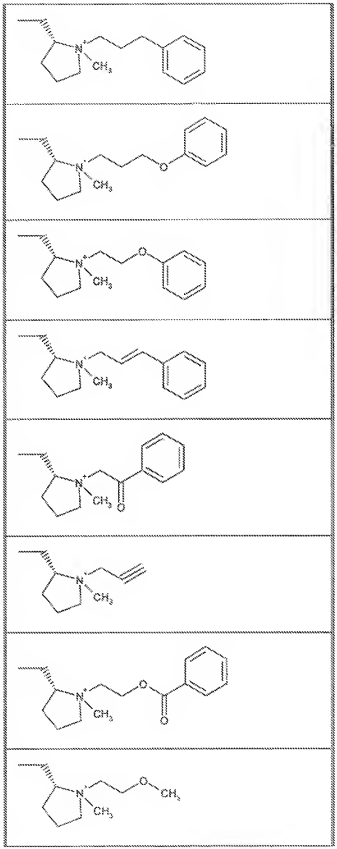


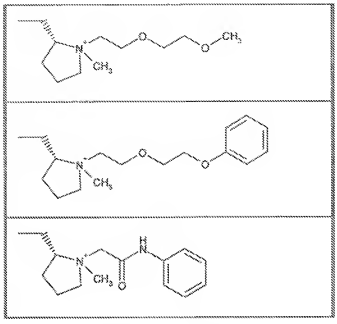
XVI

where T is as shown in the following table:

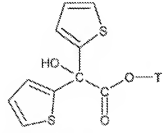
T









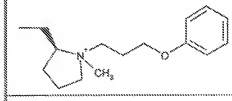
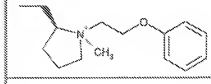
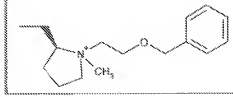


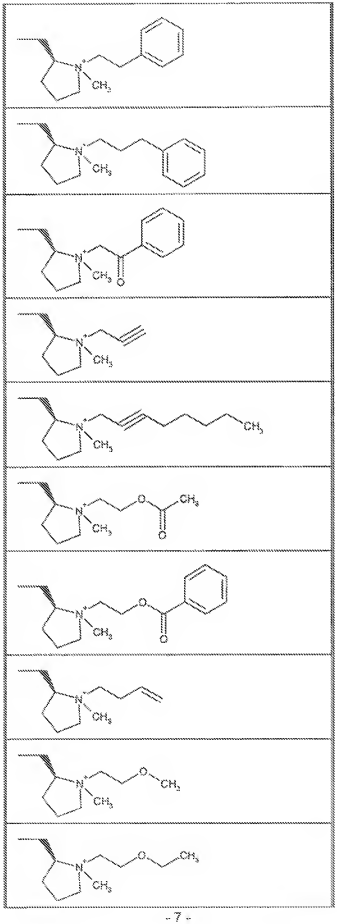
Claim 4. (Previously Presented): A compound according to claim 1, which is also a compound of formula XVII

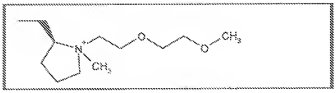


XVII

where T is as shown in the following table:

T








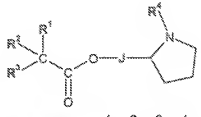
Claim 10. (Canceled)

Claim 11. (Previously Presented): A pharmaceutical composition comprising as active ingredient a compound according to claim 1.

Claims 12-15. (Canceled)

Claim 16. (Previously Presented): A process for the preparation of a compound of formula I as claimed in claim 1 which comprises:

(i) (A) reacting a compound of formula II



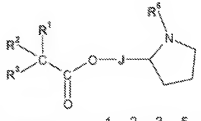
II

or a protected form thereof where R^1, R^2, R^3, R^4, and J, are as defined in claim 1, with a compound of formula III

$$X—R^5 \qquad III$$

where R^5 is as defined in claim 1 and X is chloro, bromo or iodo;

(B) reacting a compound of formula IV



IV

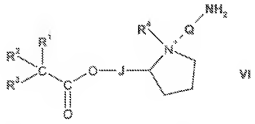
or a protected form thereof where R^1, R^2, R^3, R^5, and J are as defined in claim 1, with a compound of formula V

$$X—R^4 \qquad V$$

where R^4 is as defined in claim 1 and X is chloro, bromo or iodo; and

(ii) recovering the product in salt or zwitterionic form.

Claim 19. (Previously Presented): A compound of formula VI



VI

in salt or zwitterionic form wherein

R^1 and R^3 are each independently a C_3-C_{15}-carbocyclic group or a 5- to 12-membered heterocyclic group having at least one ring heteroatom selected from nitrogen, oxygen and sulphur;

R^2 is hydroxy;

J is C_1-C_2-alkylene;

R^4 is C_1-C_4-alkyl; and

Q is C_1-C_{10}-alkylene.

Claim 16. (Original): A pharmaceutical composition according to claim 11 wherein the compound is a single enantiomer.

Claims 19-20. (Canceled)

Claim 21. (Withdrawn - Original): A method of treating an inflammatory or obstructive airways disease in a subject in need of such treatment, which comprises administering to said subject an effective amount of a compound of formula I as defined in claim 1 in free form or in the form of a pharmaceutically acceptable salt.

Claim 22. (Canceled)